

SEPTIC CONSTRUCTION NOTES

1. THIS SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDERS. ANY GARBAGE GRINDERS DISCOVERED CONNECTED TO THE SANITARY COLLECTION SYSTEM SHALL BE REMOVED BY A LICENSED CONTRACTOR. THE REMOVAL MUST BE VERIFIED BY THE BOARD OF HEALTH PRIOR TO MERRILL ASSOCIATES, INC. PERFORMING THE SEPTIC AS-BUILT. ALL INTERIOR PLUMBING TO BE PERFORMED BY A LICENSED CONTRACTOR.
2. ALL SEPTIC STRUCTURES REQUIRING ABANDONMENT SHALL BE BACKFILLED WITH CLEAN COARSE MATERIAL, THE TOPS COLLAPSED AND INSPECTED BY THE BOARD OF HEALTH.
3. ALL SEPTIC STRUCTURES THAT REQUIRE ABANDONMENT OR REMOVAL SHALL BE PUMPED BY A LICENSED CONTRACTOR AND THE EFFLUENT TO BE DISPOSED OF AT A LICENSED FACILITY. THE BOARD OF HEALTH MAY REQUIRE PROOF OF DISPOSAL.
4. ANY MATERIAL CONTAMINATED BY SEWAGE AND TO BE REMOVED FROM SITE SHALL BE DISPOSED OF AT A LICENSED FACILITY. THE BOARD OF HEALTH & CONSERVATION COMMISSION MAY REQUIRE PROOF OF DISPOSAL.
5. ALL SANITARY STRUCTURES SHALL BE CAPABLE OF HANDLING H-20 LOADING.
6. ALL WATER SUPPLY LINES (PRESSURE) SHALL BE NO LESS THAN 10 FT TO A SEPTIC TANK OR SOIL ABSORPTION SYSTEM. THE CONTRACTOR IS REFERED TO 310 CMR 15.211 MINIMUM SETBACK DISTANCE: (1) & FOOTNOTE [1]. CONTRACTOR IS TO COORDINATE ALL PRESSURE TESTING WITH THE DEPARTMENT OF PUBLIC WORKS.
- THE DEPARTMENT OF PUBLIC WORKS AND THE BOARD OF HEALTH MAY REQUIRE THAT THE WATER SUPPLY LINES WITHIN 10 FT OF ANY SEPTIC COMPONENTS TO BE SHEATHED. THE SHEATHING METHOD AND MATERIAL TO BE APPROVED BY THE BOARD OF HEALTH AND THE DEPARTMENT OF PUBLIC WORKS. AT ALL SEWER PIPE CROSSINGS THE SHEATHING JOINTS SHALL BE STAGGERED SO THAT THE WATER SUPPLY LINE CROSSINGS ARE AT THE MIDPOINTS THE SHEATHING PIPES.
7. THE INSTALLATION OF THE SEPTIC SYSTEM MUST BE PERFORMED BY A LICENSED CONTRACTOR THAT HAS A WORKING KNOWLEDGE OF THE STATE ENVIRONMENTAL CODE TITLE V. THE CONTRACTOR IS REFERED TO TITLE V FOR ANY REQUIREMENTS THAT IS NOT SPECIFICALLY MENTIONED ON THE PLANS.
8. THE TOP OF ALL SYSTEM COMPONENTS, INCLUDING THE SEPTIC TANK, DISTRIBUTION BOX OR DOSING CHAMBER AND SOIL ABSORPTION SYSTEM, SHALL BE INSTALLED NO MORE THAN 36" BELOW FINISH GRADE. THE ENTIRE STRUCTURE MAY REQUIRE A RISER OVER THE INVERTS TO REDUCE THE DEPTH OF COVER OVER THE TOP OF THE CHAMBER.
9. ALL SEPTIC PIPES THAT ARE DESIGNED TO CONTAIN LIQUID DURING DAILY OPERATION SHALL BE PLACED NO LESS THAN 4 FT BELOW FINISH GRADE OR BE ADEQUATELY INSULATED.

10. ALL SYSTEM COMPONENTS SUCH AS BRACKETS, BOLTS & LIFTING CHAINS ETC. THAT ARE NOT OTHERWISE SPECIFIED SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL OR EQUAL.
- ALL LIFTING ANCHORS (INTERIOR/EXTERIOR) AND ANY EXPOSED STEEL SHALL BE GROUTED OR SEALED.

11. ALL SEPTIC FRAME & COVERS THAT ARE NOT OTHERWISE SPECIFIED SHALL BE 24" DIA. LeBARON FOUNDRY, INC. CAT. NO. LK110A-SEAL TITE OR EQUAL MARKED "SEWER" AND CAPABLE OF HANDLING H-20 LOADING.

SEPTIC SYSTEM INSPECTIONS

1. NOTIFY BOARD OF HEALTH AND MERRILL ASSOCIATES, INC. PRIOR TO BACKFILLING OF SEPTIC STRUCTURES FOR INSPECTION OF CRUSHED STONE BASE.
2. NOTIFY BOARD OF HEALTH AND MERRILL ASSOCIATES, INC. PRIOR TO BACKFILLING OF SYSTEM. THE CONTRACTOR IS NOT ALLOWED TO BACKFILL ANY COMPONENT OF THE SYSTEM UNTIL MERRILL ASSOCIATES, INC. HAS VERIFIED THE SYSTEM LOCATION & ELEVATION.
3. NOTIFY THE BOARD OF HEALTH AND MERRILL ASSOCIATES AFTER THE SEPTIC SYSTEM HAS BEEN BACKFILLED FOR FINAL GRADING INSPECTION.
4. THE EXCAVATION AND THE REPLACEMENT SOILS FOR THE SOIL ABSORPTION SYSTEM SHALL BE PERFORMED PRIOR TO CONSTRUCTION OF THE BUILDING FOUNDATION STRUCTURE.
5. ALL SEPTIC STRUCTURES TO BE ABANDONED REQUIRE THE BOTTOMS TO BE FRACTURED AND BACKFILLED W/CLEAN COARSE MATERIAL, THE TOPS COLLAPSED AND INSPECTED BY THE BOARD OF HEALTH & DEP.

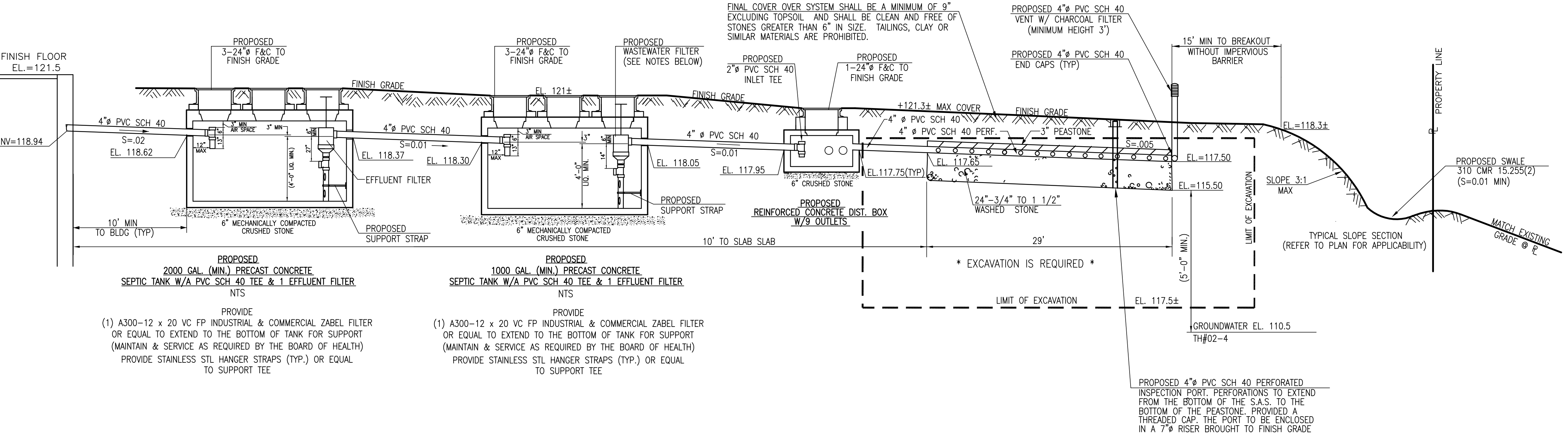
SOIL LOGS

PERFORMED BY: PAUL A. FELLINI
WITNESSED BY: JEANMARIE KENT-JOYCE, AGENT
DATE: 4-1-02

T.H. 02-1	T.H. 02-2	T.H. 02-3	T.H. 02-4	T.H. 02-5
EL. 120.2	EL. 119.0	EL. 120.9	EL. 120.0	EL. 117.0
0" TO 48" FILL	0" TO 12" A HORIZON SANDY LOAM	0" TO 12" A HORIZON LOAMY SAND	0" TO 12" A HORIZON	0" TO 12" A HORIZON SANDY LOAM 10YR 3/3
48" TO 90" C1 LAYER VERY COARSE SAND 2.5Y 5/6	12" TO 18" B HORIZON SANDY LOAM	12" TO 30" B HORIZON LOAMY SAND	9" TO 18" B HORIZON	12" TO 24" B HORIZON SANDY LOAM 10YR 5/8
90" TO 132" C2 LAYER EXTREMELY GRAVELLY SAND 2.5Y 5/6	18" TO 80" C1 LAYER VERY COARSE SAND 2.5Y 5/6	30" TO 126" C1 LAYER EXTREMELY GRAVELLY SAND 2.5Y 5/6	18" TO 60" C1 LAYER FINE SAND 2.5Y 5/6	24" TO 96" C1 LAYER EXTREMELY GRAVELLY SAND 2.5Y 5/6
D=11"-0" WATER @ 84" EL.=113.20	D=12"-0" WATER @ 80" EL.=112.33	D=10"-6" NO WATER NO MOTTLING	D=5'+ C2 LAYER MEDIUM TO COARSE SAND 2.5Y 5/6	D=8'-0" WATER @ 48" EL.=113.00
ESHGW @ 84" EL.=113.20	ESHGW @ 80" EL.=112.33			MOTTLING @ 114" EL.=110.50

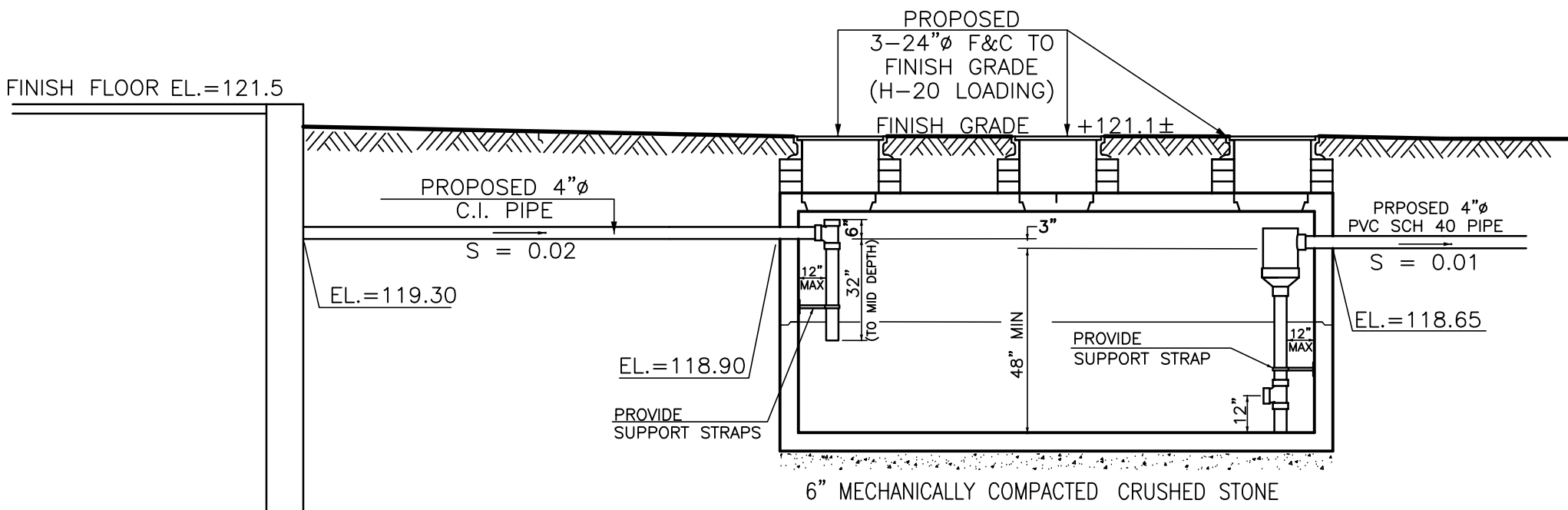
PERFORMED BY: PAUL A. FELLINI
WITNESSED BY: JIM DONOVAN, P.E., AGENT
DATE: 3-30-06

T.H. 06-1	T.H. 06-2	T.H. 06-3	T.H. 06-4	T.H. 06-5	T.H. 06-6	T.H. 06-7
EL. 119.5	EL. 120.8	EL. 120.9	EL. 120.5	EL. 120.5	EL. 120.7	EL. 120.4
0" TO 15" FILL PAVEMENT & GRAVEL	0" TO 15" FILL	0" TO 15" SANDY LOAM 10YR 4/3	0" TO 18" FILL	0" TO 28" FILL	0" TO 24" FILL	0" TO 12" SANDY LOAM
15" TO 24" B HORIZON LOAMY SAND 10YR 4/6	15" TO 28" B HORIZON GRAVELLY LOAMY SAND	15" TO 72" C LAYER EXTREMELY GRAVELLY SAND 2.5Y 4/3	18" TO 44" B HORIZON LOAMY SAND 10YR 4/6	28"-48" TO 54" B HORIZON LOAMY SAND 10YR 4/6	24"-60" A/B HORIZON LOAMY SAND	12"-30" B HORIZON GRAVELLY LOAMY SAND
24" TO 144" C LAYER FINE TO MEDIUM SAND 2.5Y 5/6	28" TO 140" C1 LAYER FINE TO MEDIUM SAND TO GRAVELLY SAND 2.5Y 5/6	44" TO 140" C1 LAYER EXTREMELY GRAVELLY SAND 2.5Y 4/3	48" TO 54" C1 LAYER EXTREMELY GRAVELLY SAND 2.5Y 4/3	48"-90" C1 LAYER VERY FINE SAND	60"-90" C1 LAYER VERY FINE SAND	30" + C1 LAYER EXTREMELY GRAVELLY SAND
D=12'-0" WATER @ 136" EL.=108.50	D=11'-4" NO WATER NO MOTTLING	D=6'-0" NO WATER NO MOTTLING	D=11'-8" NO WATER NO MOTTLING	D=12'-0" WATER @ 140" EL.=108.83	D=7'-6" NO WATER NO MOTTLING	D=2.5' + WATER @ 114" EL.=110.90
MOTTLING @ 130" EL.=108.70				MOTTLING @ 140" EL.=108.80		MOTTLING @ 108" EL.=111.40



SUBSURFACE SEWAGE DISPOSAL SYSTEM-1600 SF. BUILDING

(NOT TO SCALE)



PROPOSED 1,500 GALLON
PRECAST CONCRETE GREASE TRAP

(MONOLITHICALLY POURED & WATERPROOFED)
(H-20 LOADING)

NTS
PROVIDE GALV. STL HANGER STRAPS (TYP.) OR EQUAL TO SUPPORT TEES
PROVIDE (1) A300 (CAP.=3,000 GPD) INDUSTRIAL & COMMERCIAL ZABEL FILTER OR EQUAL TO EXTEND TO THE BOTTOM OF THE TANK FOR SUPPORT (MAINTAIN & SERVICE AS REQUIRED BY THE BOARD OF HEALTH)
PROVIDE GALV. STL HANGER STRAPS (TYP.) OR EQUAL TO SUPPORT TEES

SEPTIC DESIGN (NOT DESIGNED FOR GARBAGE GRINDER)

1. **DESIGN DAILY FLOW (310 CMR 15.203(3) COMMERCIAL**
PROPOSED RESTAURANT-FAST FOOD
24 SEATS x 20 GPD PER SEAT = 480 GPD
RETAIL SPACE: 1800 SF. x 50 GPD/1000 SF. = 90 GPD
TOTAL = 480 GPD + 90 GPD = 570 GPD-USE 1000 GPD MINIMUM (DDF)
LEACHING TRENCHES: P.R. = 4 MIN/IN. CLASS I, USE: ELR=0.74 GPD/SF
USE: 8 - 29' LONG x 2' WIDE x 2' DEEP TRENCHES
TITLE V
REQUIRED AREA: 1000 GPD/(0.74 GPD/SF) = 1352 SF(MIN)
PROPOSED AREA: 8 x 29' L.F. x 6' S.F./L.F. = 1392 S.F. > 1352 S.F.
CAPACITY: 1392 S.F. x 0.74 GPD/S.F. = 1030 GPD > 1000 GPD(D.D.F.)
2. **DESIGN SEPTIC TANK (310 CMR 15.223 TO 15.228)**
310 CMR 15.225: TANKS IN SERIES

	MINIMUM REQUIRED	PROPOSED:
1st SEPTIC TANK:	1000 GPD x 200% = 2000 GALLON (MIN)	< 2,000 GALLON
2nd SEPTIC TANK:	1000 GPD x 100% = 1000 GALLON (MIN)	< 1,000 GALLON
TOTAL VOLUME REQUIRED	= 3000 GALLON (MIN)	< 3000 GALLON
3. **DESIGN GREASE TRAP**
FAST FOOD RESTAURANT: (KITCHEN FLOW: 15 GPD/SEAT)
24 PERSONS = 24 SEATS (ASSUMED)
24 SEATS x 15 GPD/SEAT =360 GPD
360 GPD x 100% = 360 GALLONS USE: 1500 GALLONS (MIN)
4. **EXCAVATION:**
REMOVE EXISTING SOIL ABSORPTION SYSTEM (SAS) AND SURROUNDING DISTURBED MATERIAL AND EXCAVATE ALL UNSUITABLE MATERIAL 5 FT AROUND AND BELOW THE PROPOSED S.A.S. AS SHOWN.
EXCAVATE ALL MATERIAL 5 FT AROUND S.A.S. TO THE C2 LAYER (ELEV. = 116.8±). REPLACE WITH CLEAN COARSE MATERIAL IN ACCORDANCE WITH 310 CMR 15.255 TO TOP OF SAS (ELEV. = 118.3±). EXCAVATION MUST BE INSPECTED BY THE TOWN & MERRILL ASSOCIATES INC. PRIOR TO SOIL REPLACEMENT.
ADDITIONAL EXCAVATION MAYBE REQUIRED AT THE TIME OF INSPECTION.

REVISIONS

3	5/14/07	GATE VALVE ON WATER MAIN
2	3/5/07	REVISE PER BOH COMMENTS
1	1/30/07	ADD TOWN REVIEW COMMENTS



DRAWN BY: BDH

DESIGNED BY: DH

CHECKED BY: DH



MERRILL ASSOCIATES, INC.
REGISTERED PROFESSIONAL ENGINEERS
AND LAND SURVEYORS
427 COLUMBIA ROAD - HANOVER, MA 02339
TEL (781) 826-9200 FAX (781) 826-6665

SITE PLAN
1972 /1978 WASHINGTON STREET
ASSESSORS MAP 5, LOTS 25 AND 57
HANOVER, MASSACHUSETTS
APPLICANT/OWNER
1972 WASHINGTON STREET LLC
EUGENE CROWLEY
1972 WASHINGTON STREET
HANOVER, MA 02339

NOVEMBER 16, 2006

SCALE: AS NOTED

JOB NO. 06-016

LATEST REVISION:
MAY 14, 2007

SEPTIC DETAILS
BUILDING 1-EAST